

ESTABLISHED IN 1861

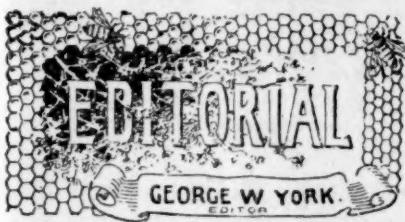
THE AMERICAN BEE JOURNAL

OLDEST BEE-PAPER IN AMERICA

Weekly, \$1 a Year. | DEVOTED EXCLUSIVELY TO BEE-CULTURE. | Sample Copy Free.

VOL. XXXIII. CHICAGO, ILL., MAY 24, 1894.

NO. 21.



The Albino Bee is a pretty bee,
The Italians take the fame;
The black bee has no friend at all,
But they get there just the same.

[Yes, with their little stingers.—EDITOR.]

The foregoing rhythmical stanza and editorial comment appeared in the *Progressive Bee-Keeper* for May. But here's a version of it by our German friend, Hans Schnitzel, who evidently speaks from experience:

Dot vite leidle pee vas goot und nicer,
Dot yellow von vas petter;
Dot plack crow pee he vas von "beiszer"—
Bud Poonics pee—oh, dunner-vetter!—
Dem shting me vonce right on mine moud,
So I nix coodt ead, und nix shpeak oud!

Hon. R. L. Taylor will continue at the head of the Michigan Aparian Experiment Station for another year. This was decided recently. We were glad to hear it, for Bro. Taylor did some splendid work for bee-keepers the past year, and doubtless some more of the same kind may be expected from him this year. We presume he will continue to furnish advance reports to the *Review* as heretofore. Next week we expect to reprint one of them again for the benefit of our readers. Look out for it.

A Corner in Honey.—We learn that the honey-dealers in San Francisco and Los Angeles, Calif., are getting up a corner in honey, by buying up all the honey they can find, knowing that the crop of 1894 is going to be almost a total failure in that State; in fact, it is learned that the honey crop of the southern counties is going to be a complete failure. Now if the rest of the United States will only have a good crop of honey, that little "corner" may find its friends "in a corner" with a lot of honey on their hands which they may have to dispose of at a sacrifice. You see, there may be at least two kinds of "corners" besides the one that "pussy wants."

Heddon Further Replies.—On page 664 of this issue of the *BEE JOURNAL* will be found the reply which was summed up briefly by Bro. Root, on page 552 of the *BEE JOURNAL* for May 3rd. We consider that now, so far as we are concerned, we have been very fair to Mr. Heddon in devoting so much space to his explanations and refutations of the charges of alleged adulteration of honey.

Dr. Miller, we are sorry to learn, has been working his brains too hard, and consequently was threatened with "brain-trouble." He recently wrote us this: "The one thing that I never dreamed of giving out was my head. Shows that I overrated the amount of brains I had." It is a good thing the hard-working Doctor found out before too late that his brains weren't made of indestructible material, however bright and strong they may always have appeared to be. We hope he will "rest up" a little, and get fully restored, for the

bee-keeping world can spare his head just yet—and will never willingly do so.

The cause of his sufferings may have been an over-supply of "straws" sticking in his brains, but by this time we should think that cause would be ended, judging from the great number of little "strawstacks" he has furnished *Gleanings*.

The Doctor is now able to attend to his bees and literary work about as usual, we believe, and with the warning he has had, we hope he will see the necessity of taking better care of *himself* hereafter.

The Second Volume of the *Australian Bee-Bulletin* was completed with the March number. Seldom does a new bee-paper show such signs of improvement in so short a time. Surely, our Australian brethren are making apian history very rapidly indeed. We wish their valuable journal still greater success, and its publishers all the prosperity their splendid efforts merit.

Fruit-Men and Bees.—In a communication received from Prof. Cook, last week, were these words:

I tell you this is a grand place. I like everything here. My work now is to convince fruit-men that they need the bees. It is emphatically true, and I can show it.

Claremont, Calif. A. J. COOK.

On page 660 of this number of the BEE JOURNAL is the first part of a convincing lecture given by Prof. Cook before the convention of California horticulturists recently. Be sure to read it all. The Professor is doing some grand work these spring days, both for fruit-growers and for bee-keepers. Let the good work go on.

You Can't Afford It!—What can't you afford? Oh, lots of things! But there is one thing that a bee-keeper cannot afford to do—and that is, to drop his bee-paper during what some folks call "hard times." While we have had a very few who have done so, still we are glad to say that we believe nearly every one of our subscribers will never stop the BEE JOURNAL on account of hard times. They certainly will remember that in such times the publisher, worse than ever, needs money to keep the paper going till "good times" come again.

But, actually, one of our subscribers said

this, when paying up his arrearage: "I will renew when times get better." Of course we were glad to know that he intended to "renew" sometime, but what if every subscriber should follow his example in dropping his paper? Well, the result would be that publishers would have to quit, and when the good times come once more, they wouldn't have anything with which to start up again.

No, dear reader, above all things, don't drop your best helpers—the bee-papers, or any other good paper, for that matter. You can't afford to do it. If you expect to make a success of the bee-business, and keep up with the procession, by all means don't stop your bee-paper. During hard times you need it more than ever, to help you to make money enough to carry you through to the "good time coming," and also to encourage you by reading of what others are doing. Every way you look at it, you will find that you can't afford to drop your best reading matter. It is better to economize in some other direction, if you must economize at all.

Big Honey-Flow.—Mrs. Atchley, writing on May 12th, said:

We are having a big honey-flow here in Texas, right now—the second one this year—and we expect two more yet, so you can imagine how busy we are. We have our new residence nearly enough completed so that we are in it, and now are building a 100-barrel underground cistern. We will have a hydrant from our windmill tank in all our rooms, a brick milk-house, and a large $\frac{1}{2}$ -acre pool just above our garden, and be fixed to irrigate and raise vegetables all the year round. We have had new beans and Irish potatoes since April 1st.

JENNIE ATCHLEY.

The Second Annual Report of the Illinois State Bee-Keepers' Association is on our desk. It is neatly bound in cloth, and contains 260 pages. The subject matter consists of the reports of recent meetings of the State Association, and also the whole of the report of the Columbian meeting of the North American, with all the illustrations that appeared in connection with it.

Bro. Jas. A. Stone, of Bradfordton, Ill., the tireless Secretary of the Illinois Association, has gotten out a book that is in every way a credit to the association, and an honor to the State. Cloth-bound copies

of this Report will be mailed only to members of the State Association. Any one may become a member anywhere in the United States by paying to the Secretary the annual membership fee of \$1.00. Also, only the members are entitled to participate in the statistical reports, gathered in four different months during the honey season, no matter in what State they live. The first one of these smaller reports will be sent out in a week or two.

Any one so desiring, can secure a paper-bound copy of the "Second Annual Report" mentioned above, by sending 8 cents in stamps to Secretary Stone, to pay for postage and wrapping.

Full Sheets of Foundation given to bees in brood-frames having no combs, will greatly encourage the bees to work.

Honey in the United States.—We have received the following bit of information from our good friend, Hon. Eugene Secor, in regard to the amount of honey produced in the United States, according to the 11th census:

Perhaps you may have published the findings of the Census Bureau touching apiarian products for the year 1889, but if so it has escaped my notice. I have the figures by private letter from the Department, and they are as follows:

Pounds of honey produced in 1889 ..	63,897,327
" wax "	.. 1,166,588

The enumerators were not instructed to collect information as to the number of colonies. The above figures may, or may not, represent a fair average production.

The yield depends so much upon atmospheric conditions, that one year in ten will hardly give us a reliable basis for statistics, unless we take an average of several decades. But it is a pretty good guess for 1889.

It doesn't seem much like over-production in this line, when only about one pound of honey *per capita* is produced in the United States.

EUGENE SECOR.

No, there never can be an over-production of honey—it will always be under-consumption. When once people are educated up to the use of honey, they will require every pound that can be produced, and at a fair price. Bee-keepers need only to produce it and put it up in neat and attractive shape, when this sweet-loving nation will soon help to get rid of it. Only preserve its purity, and peculiarity of flavor, and people will buy and use it all.

Wearing a Bee-Veil.—In the April *Review*, Bro. Hutchinson tells "how to wear a bee-veil without tucking it inside the collar," thus making it more comfortable. He also gives an illustration in connection with the description, but doubtless the majority of readers will be able to understand it without seeing the picture. Here is what Bro. H. says:

When it is necessary to wear a veil in hot weather, who has not wished that there was some way of holding it down, aside from that of tucking it inside the collar? When the neck is hot and sweaty, how it feels with a sort of muffler pressed close against it by the collar. Besides this, the veil is held suffocatingly close to the face. All this may be avoided, and I'll tell you how.

In a hem in the bottom of the veil run a string, leaving about a foot of the hem, right in front, unoccupied by the string. That is, let the string enter the hem at about 6 inches to the right of the center of the front of the person, pass it around the back of the neck, bringing it out of the hem at a point 6 inches to the left of the center. The projecting ends of the string must be long enough to pass under the arms, cross at the back, and then be brought around and tied in front. The string holds the edge of the veil securely out upon the shoulders, while if the right length of hem is left without a string in front, that part will be drawn snugly across the breast.

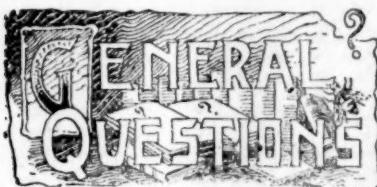
To Mr. Porter of bee-escape fame, belongs the honor of devising this unsurpassable way of holding down a bee-veil.

LATER.—In the *Review* for May, we find the following additional reference to the foregoing item about wearing a bee-veil:

Another point in holding down a veil, as described in the last *Review*, is that the veil is held out from the face and neck, thus no bees are caught in the folds touching the neck and sting through, as is so often the case when the veil is tucked inside the collar. As I never taste of honey when working with the bees, and don't wear glasses, it never occurred to me until Friend Hasty mentioned that it might be a convenience to some folks to be able to handily get inside their veil. Mr. Daggitt suggests that there be an elastic in front to allow the veil to be raised. This arrangement would result in numerous folds in front of the face—something that would greatly obstruct the vision.

“The AMERICAN BEE JOURNAL is all any practical bee-man could ever wish for.”
—THEO. NAANES, of Kansas.

Read our great offers on page 643.



ANSWERED BY
DR. C. C. MILLER,
MARENGO, ILL.

In this department will be answered those questions needing IMMEDIATE attention, and such as are not of sufficient special interest to require replies from the 20 or more apiarists who help to make "Queries and Replies" so interesting on another page. In the main, it will contain questions and answers upon matters that particularly interest beginners.—ED.

Changing Queens at Swarming-Time.

Suppose you want to introduce new blood at swarming time, is it a good plan to hunt up the old queen of the swarm, and replace her immediately by a caged queen upon hiving the swarm? Will bees work as usual and release the queen safely?

MONTREAL.

ANSWER.—I never tried it. Doolittle says they are likely to be dissatisfied with a strange queen at swarming time.

Land for Bees, Bee-Food, Etc.

1. How much land would be requisite to accommodate 5 colonies—thence 50 colonies—and what kind would be best to sow, white or red clover? Ours is now a great potato-growing district.

2. Could a basement whose wall is 18 inches above the surface to the sills be used to keep the hives in summer time for summering bees?

3. How many swarms or colonies would it require to make a livelihood or a sum of \$250.00?

4. If it would not pay to buy or hire land for bee-pasturage, would it pay any better to have to keep purchasing patent or prepared bee-food? I trow not. M. L. B.

Orient, N. Y.

ANSWERS.—1. Where land is valuable, hives can be put pretty close together, making a group of five occupy about 6 feet square, or 36 square feet, thence 10 times as much for 50 hives, which would be 360 square feet or its equivalent, 40 square yards. Then you will also need some additional territory to be occupied by the bees as bee-pasturage for them to roam over to extract the nectar that Nature offers. She doesn't offer much in potato posies, and if you wish to sow white or red clover it will be better to sow the white, for the tongues of hive-bees are not long enough to get the red clover nectar.

There exists a painful uncertainty as to the exact amount of land needed to support in affluence a colony of bees, such land being occupied with white clover. An apiary of a hundred colonies usually has something like 5000 acres to work on, or 50 acres for each colony. But most of this 50 acres is of no use to the bees, and it is possible that all the white clover on it could be massed on a single acre. If that be so, then an acre of white clover for each colony might answer, and yet it might turn out that an acre would support more than one colony. I am sorry that I cannot answer more definitely, and I assure you the only reason is because I don't know; neither do I know who has the desired information.

2. Yes, bees could be kept there through the summer by having holes or passages from the hives through the walls to the open air. But I don't believe it would be a good place, and I'd rather put them up on the roof if land is scarce. Some have succeeded well with bees on the roof, but I don't know that any one ever did in a cellar, except through winter.

3. 88 colonies. That is, on the supposition that each colony would average about \$8.01 per annum. Of course if the average yield is different, then the number must be changed. Sometimes the yield is very much larger, and then it will make up for poor years. If you depend entirely upon your bees, and with nothing laid up ahead, and have an entire failure, then you must depend upon your friends to help you out.

4. I trow just the same as you trow.

Hives, Sections and the Bee-Escape.

1. Will $\frac{1}{2}$ inch stuff do for sides of hives, in this climate? We seldom see the mercury below the freezing point, but a friend says an inch board is more protection against our hot summer sunshine.

2. Can I, by using sections in wide-frames, produce some comb honey, in connection with extracted, in Simplicity hives?

3. How would you ventilate hives exposed to the hot summer sun?

4. How prevent crushing bees when putting on the bee-escape to clear supers? My bees, mostly hybrids, pile up in the way and merely wax madder and madder at the use of brush or smoke.

C. S. H.

Holly Hill, Fla.

ANSWERS.—1. I cannot speak with authority, and should prefer to depend upon the experience of those who have tried different hives, but it would seem that tolerably thin lumber might do in Florida. Nearly all hives in the North are made of $\frac{1}{2}$ -inch stuff, and $\frac{1}{4}$ -inch thinner might do with you. So far as the hot sun is concerned, I think I should want some additional protection against it, no matter how thick the hive-stuff might be. A shade-board laid over the hive, projecting to the south, would do, or if more convenient some long grass with a stick of firewood laid over it.

2. The instinct of the bee is to store hon-

ey. Its first care is to store near its brood, so the brood-chamber will be first occupied, then it will fill whatever is given to it, sections or extracting-combs. If both are given to it at once it will be likely to fill the combs first, so you hardly need expect the sections to be touched if it has all the extracting-combs needed. After they are filled, then the sections will be taken in hand. It may suit you well to give sections for your first or best flow, then take off the sections and give extracting-combs. If sections are given late in the season you are likely to have a lot of them left unfinished, but unfinished extracting-combs are not so objectionable.

3. I would shade the hives as mentioned in No. 1, or better still, have them in the shade of trees, and then with the ordinary hive-entrance, say the width of the hive and half an inch deep, the bees will take care of the ventilation.

4. You must have pretty bad bees. If the fault is all in the bees, and none of it due to the handling, I think I'd introduce some new blood. If you can't smoke them out of the way, I'll tell you what you can do. Put on one end of your escape carefully, holding the other end up. Now move the free end up and down, a little at a time, each time letting it go a little lower until it is down. You will soon get "the hang of it," and be able to do it without killing a single bee, for each time you lower it some of the bees will be pinched a little, and then as you raise they will get out of the way.

Temperature for Handling Brood.

How warm must it be before frames of brood can be taken from the hive with safety without chilling it? W. H. R.

ANSWER.—You can't go altogether by the thermometer. You know on a chilly day it makes a good deal of difference to you whether it is still or windy, whether you are on the housetop or in some sheltered place, and bees, I suppose, are much like folks. Better not disturb them any time when they think it isn't warm enough to fly freely.

May-Flowers and Mistletoe is the suggestive name of a book of over 250 pages containing selections of poetry and prose for all seasons, for older boys and girls, from the best writers of the day, with dialogues, motion songs, and drill exercises for smaller children. It is suitable for rhetorical exercises in the school and entertainments given by church, library and benevolent societies. Beautifully illustrated, and each poem or selection set in a colored border. Cloth-bound; size, 8x10 inches; price, postpaid, only \$1.00. Clubbed with the BEE JOURNAL for one year—both for \$1.75; or given free as a premium for sending us three new subscribers to the BEE JOURNAL for a year.



PROFITABLE BEE-KEEPING.

Lesson No. 2.

(Continued from page 558.)

As we just finished transferring in closing our first lesson, we will now suppose that the bees are working nicely, and will soon be ready to swarm. But I wish to impress upon your minds, before we proceed further, that the season must be watched, and see if the bees are gathering sufficient honey to support them, as transferring usually stimulates them to the highest pitch, and they turn right in to rearing brood as fast as possible, and soon consume all the honey they have, as it takes honey to rear bees, and instead of being in a swarming condition, they may be starving.

To make a bee-keeper, you must study your flowers, especially those that give your honey, and at times when you have no honey coming in, better feed if you wish best results.

Well, to make this part short and to the point, I will ask you if you would think of letting your horse starve to death on a dry pasture? You answer no. Then you should no more allow your bees to starve than your horse, as at times during warm weather the bees may starve if there is no honey to be had.

Now, as every bee-keeper that I have ever known wishes his or her bees to increase especially until a certain number is reached, I will give instructions how to increase your bees, and give along with it caution.

HOW TO INCREASE BEES.

As increase usually comes before we get our surplus honey, we will go into detail and try to describe all manner of successful increase.

First, let us consider where you live, and at what time of the year you get

your surplus honey. If you live in Northern States, or anywhere where swarming and your honey harvest come together, better let your bees swarm naturally, and if you are producing comb honey, you can hive your swarms on a contracted brood-nest (Contraction and Spreading will appear later), and realize a crop of honey; while if divided artificially, you would likely spoil your honey crop, as your seasons in such countries will not allow time in which to build the bees up after the time of year arrives that it is safe to divide.

But if you live in a Southern country, where the swarming season comes two to three months before any regular harvest, I would surely advise you to divide your bees, and make your colonies artificially, as it is called by some. But to my certain knowledge there is no colony of bees that equals a natural swarm for work, as nearly all the field forces go along with the swarm, and a new home to build up, and new combs to build, it seems that it gives them a vigor that no other kind of a colony has. I tell you, it *pleases* a natural swarm to get to build combs, as they usually go out prepared to do this kind of work, and they seem to feel somewhat disappointed if they are hived on full drawn-out combs. I would *always* leave part of the combs for a natural swarm to build. Foundation gives them a place to use their comb, and also gives you straight combs. Foundation will be discussed later on.

Now, if I get a little wild, and get off the track, you must excuse me, as I am teaching you from memory, and I am using bees, hives, etc., together with my experience, for books. I have no books by me to quote from. I have read almost all of the bee-papers and bee-books, and am indebted to them all for my success, and I could not yet get along well without my bee-papers and bee-books. So please excuse my wanderings, for I have set out to tell you *all* about bees, and I will have to go into detail.

Well, I now had better show you how to make artificial swarms, and give my reasons.

Keep your eyes on the bees, and when they are getting strong in bees, honey coming in enough to keep brood-rearing going, and sealed drones in the combs, then you may get a new hive ready.

Now go to the colony to be divided, and raise out the combs until you come across the queen, then place the comb she is on into your new hive; take half the combs—those nearest empty—and leave the frames of sealed brood in the

old hive (four frames—we will suppose you use an eight-frame hive).

Now place the old hive away on a new stand (leaving one frame with eggs in it). They will at once start queen-cells, and if you keep close watch you will find on the eighth or ninth day a number of sealed cells. I put the time to nine days, that you won't have to make a second investigation to destroy queen-cells. We will say on the ninth day you overhaul the young swarm in the old hive, and destroy *all* their queen-cells *but two* of the longest and largest ones; then on the twelfth or thirteenth day from the time you made the division, look in, and if one cell has hatched, tear the other one down. If neither cell has hatched, better look twice a day for two days more, and remove one cell as soon as the other hatches. This is to prevent them from swarming.

Now, as you have only the two colonies, and no other chance to rear a queen except in that one hive, I have told you to leave two cells for fear one *might* not hatch, and I tell you now that the old adage, that two chances are better than one, holds good with bees, too. But, should both cells hatch at about the same time, you can hunt out one queen and kill her, and the bees are sure not to swarm. If you let them have their own way about it, in this country, the bees *will* swarm, and cause you to get no honey from these two small swarms that year.

Now, if all has gone well with you, your virgin queen will fly out and become mated about the fifth day, if the weather is fine, and on the eighth or ninth day from the day she hatched, she will be a laying queen, and just about the time the last bees are hatching from the comb, she will be there ready to refill cells with eggs.

Let us count and see if we are right about this. We will calculate that your queen was reared from a larva one day old. Three days in the egg, one day larva, 12 days a hatched queen. Now count and see if this is not 16 days.

Well, as there are usually eggs that are two or three days behind those the queens are started from, we will count two days behind the queen, and three days ahead of her, and we have the last workers just hatching about the time she mates with the drone, on the fourth or fifth day; and as the queen often hatches on the eleventh, and sometimes the tenth day, owing to the age of the larva she is started from, you may be looking for your young queen to begin to lay just about the time the last bees

hatch out, and if the bees have all been hatched a week, and still no eggs, you may begin to be alarmed that your queen has been lost in mating, or otherwise prevented from beginning her work. She may have bad wings, or be defective in some way, and never be any good. In such cases you had better buy a queen from a queen dealer or breeder at once, giving a frame of eggs and larva from your old queen, by swapping a frame. This will keep them from running into laying-workers, as we term it, which will be explained in one of our lessons.

As soon as your queen arrives, tear down all cells started on the comb of brood last given them, and introduce her according to directions that usually accompany the queen. Be very sure they have no kind of a queen, and you will succeed nine times in ten in introducing the queen. You can save all this time and bother by purchasing a queen before the division is made, and introduce the bought queen at the same time you divide, and all will go better. But I gave the whole plan as above, in case you did not wish to buy a queen, as I would like you to use economy. But it would be economy after all to buy a queen if you made a failure in getting a laying queen.

Well, dear scholars, if you ever expect to count your colonies by the hundred, you have all these ups and downs to go through with sooner or later, and the sooner you learn to mount the obstacles that are cast in the successful bee-keepers' pathway, the better for you. This is why I have led you through all this preamble.

Now the increase being over for the present, let us get to work and prepare the two colonies for the honey harvest. We will say this dividing was done on March 1st, then you have two months, or until May 1st, to get your bees in tip-top condition to gather the harvest, which is ample time.

But before we get too far, we will talk about other ways of increase, as this seems to be the subject of this lesson, so, to make it plain, we will jump clear up to a 50-colony bee-keeper at one jump. We do this to get at one of the best modes of increase I ever practiced, and is very good where we run our bees for extracted honey. (See Extracted Honey further on.)

But in running for extracted honey we ought to have two-story hives, and I like hives that both stories are the same—that is, take full-sized frames. Then at the close of the year, or in time for

the bees to store ample honey for winter, you can rear a queen-cell for every colony you have (see Queen-Rearing), and three days before these cells hatch, take half the frames from the top story and adhering bees, place these eight frames in an empty hive, take it off to a new stand, give cells on the evening of the second day, or morning of the third day, to the queenless colonies, and you will soon have double the number of colonies, and also have *all* your empty combs occupied, as in warm countries like this it is a big job to get combs through without the moth injuring them, if not ruining them; then you have had the full benefit of all your bees, as this is a plan where swarming has been kept down, and the bees run for extracted honey.

In northern countries it is not so hard to keep empty combs over, as freezing weather soon comes after the fall flowers are over, which stops the work of the moth.

Should any colony, or colonies, miss a queen from any cause, you can unite them with some of your weakest colonies, by caging the queen three or four days. This is a splendid and paying way to increase, and gives vigorous colonies for next year's work. Then you can go on from year to year making increase the same way until you get to your limit, or until you get as many bees as you want.

We will now consider one other way of increase before we close this lesson, which makes all the plans then that I would use aside from natural swarming.

This last plan I will only give briefly, as it is not much practiced, but just as good colonies are made in that way as any other.

Along through the season, at intervals, you can take frames of hatching brood from four to eight colonies, or until you get enough combs to form a colony, taking only one frame from any one colony, and you can hardly detect any shortage in the hives drawn from, and at the same time form good and profitable colonies.

This can be done until the apiary has been gone over, and in two weeks repeat it, etc., giving queens by some of the plans described in the forepart of this lesson. If this method is practiced while bees are gathering honey, and the newly-formed colonies supplied with a sponge of water and shade, all will go well, and after five days they will have bees old enough to go out after pollen and water, and by the time their queen begins to lay, they will be all right, and

surprise you. This is what we call the "drawing-brood plan."

To close this lesson, I will give my reason for preferring artificial increase. We will, of course, suppose you gave the colonies frames of foundation, or empty frames to fill their hives at the time of dividing foundation is best. My reasons are, First, we do away with having to watch our bees at swarming-time, and we can control them to increase only double, while if left to swarm naturally, all the same precaution *must* be used to prevent second swarms, and getting laying queens, etc.; and as the anxiety, or fear about natural swarms coming out while no one is present, is worth a great deal, as a bee-keeper *cannot* afford to lose bees, especially big, first swarms, this feature alone is sufficient to warrant me in preferring artificial increase. Then I have all built up and ready for the honey-flow together.

We now have two *booming* colonies for the harvest, and this is a big word for me against one kept from swarming at all, and usually gives more honey.

In the next lesson we will take up honey-production.

JENNIE ATCHLEY.

(To be continued.)

CONVENTION DIRECTORY.

Time and place of meeting.

1894.

June 15, 16.—Eastern Kansas, at Bronson.
J. C. Balch, Sec., Bronson, Kans.

Aug. 16.—East Tennessee, at Whitesburg, Tenn.
H. F. Coleman, Sec., Sneedville, Tenn.

1895.

Feb. 8, 9.—Wisconsin, at Madison, Wis.
J. W. Vance, Cor. Sec., Madison, Wis.

[?] In order to have this table complete, Secretaries are requested to forward full particulars of the time and the place of each future meeting.—THE EDITOR.

North American Bee-Keepers' Association

PRES.—Emerson T. Abbott....St. Joseph, Mo.
VICE-PRES.—O. L. Hershiser....Buffalo, N. Y.
SECRETARY—Frank Benton, Washington, D. C.
TREASURER—George W. York...Chicago, Ills.

National Bee-Keepers' Union.

PRESIDENT—Hon. R. L. Taylor..Lapeer, Mich.
GEN'L MANAGER—T. G. Newman, Chicago, Ill.
147 South Western Avenue.

One-Cent Postage Stamps we prefer whenever it is necessary to send stamps for fractions of a dollar. By remembering this, you will greatly oblige us.



Will there Be More Pollen in Sections?

Query 924.—Suppose a queen-excluder is placed over the brood-chamber, on that a super of sections, and on that a super of brood-combs with brood, but no queen, will there be more pollen in the sections than if no brood is above?—Subscriber.

Probably yes.—J. A. GREEN.

I should think there might be.—C. C. MILLER.

I never tried the experiment.—MRS. L. HARRISON.

I think not. Try it and report.—G. M. DOOLITTLE.

I have never tried the experiment.—J. M. HAMBAUGH.

I am not sure, but I should not expect any trouble.—A. J. COOK.

Please try it and let us know. I never tried it.—MRS. JENNIE ATCHLEY.

I should expect more pollen in the sections in that condition.—E. FRANCE.

There will be very much more pollen in the sections with brood above.—P. H. ELWOOD.

Probably, and they would be disfigured by the addition of bits of wax from the old combs.—R. L. TAYLOR.

If you follow that method a few years I think you will be ready to go out of the business.—H. D. CUTTING.

I suppose there would; but why put a super of brood-combs with brood above a super of sections?—M. MAHIN.

It is possible there might be, but the bees seem to prefer putting honey and pollen as near the brood as they can.—A. B. MASON.

Yes, certainly, though the queen-excluder will have a tendency to keep the pollen-carrying bees out of the super.—DADANT & SON.

I do not know. I have never thought it profitable to form such a combination, so I cannot speak from experience.—EMERSON T. ABBOTT.

It is quite likely that there would be, but I would not want my section-cases placed in such position, for other reasons.—C. H. DIBBERN.

I would think yes; but I do not see why any one would think of asking such a question, much less of performing such an act.—JAS. A. STONE.

There is liable to be; but if there is room for pollen above, as well as brood, very little pollen will be found in the comb honey.—J. H. LARRABEE.

I have never tried the experiment. But judging from bee-instinct, I should infer that there would be more pollen next the brood.—J. P. H. BROWN.

I don't know. Why not put the upper super with brood next above the queen-excluder? Wouldn't that catch all the pollen sure? Wouldn't it depend a good deal upon the size of the brood-chamber? —EUGENE SECOR.

No. The bees will store the pollen near their brood, and as the young bees emerge from the cells, they—the cells—will be filled with pollen; but your sections will be travel-stained and spoiled.—MRS. J. N. HEATER.

I never tried the experiment, but would think that it would increase the chances for pollen in the sections, especially if the brood was young enough to need pollen, as it is the nature of bees to store pollen as near the brood as they can.—S. I. FREEBORN.

Yes, and the frequent travel of the bees over the comb will soil the white cappings more or less. Its advantages hardly offset the disadvantages; coax the bees into the super, by the use of partly-filled combs—liberal starters and the like. If there is an odor about the case, wash it with sweetened peppermint water.—W. M. BARNUM.

I have often tried the experiment, and the pollen gives no trouble. "Travel-stain" is the main objection to the plan, hence I put the super of brood-combs on the excluder, and the section-case on top of the latter. This is my method, in a nut-shell, of preventing swarming, and which I have described several times in the AMERICAN BEE JOURNAL.—G. W. DEMAREE.

I have practiced this plan of placing a super of sections between brood-chambers of brood extensively, and can say no. Neither do the bees store bee-bread in them, even when the queen is in the upper brood-chamber, although all the pollen is carried through the super of sections. Exceptions will occur now

and then, as well as in the use of a single shallow brood-chamber with queen-excluder and sections above, in which an occasional cell of bee-bread will be found in the sections; and the same is true of the ten-frame Langstroth hive.—G. L. TINKER.

I don't know. Who does? Has any one ever tried such an experiment? If so, with what object in view, and what good could or did it accomplish? Unless the experiment was tried during several seasons, and with several colonies, no correct answer could be obtained; and if one had the time, and cared to take it, with the trouble involved, I hardly think it would be found to pay.—J. E. POND.

Queens and Queen-Rearing.

If you want to know how to have queens fertilized in upper stories while the old queen is still laying below; how you may safely introduce any queen, at any time of the year when bees can fly; all about the different races of bees; all about shipping queens, queen-cages, candy for queen-cages, etc.; all about forming nuclei, multiplying or uniting bees, or weak colonies, etc.; or, in fact, everything about the queen-business which you may want to know—send for Doolittle's "Scientific Queen-Rearing"—a book of over 170 pages, which is as interesting as a story. Here are some good offers of this excellent book:

Bound in cloth, postpaid, \$1.00; or clubbed with the BEE JOURNAL for one year—both for only \$1.65; or given free as a premium for sending us three new subscribers to the BEE JOURNAL for a year at \$1.00 each.

Bound in paper cover, postpaid, 65 cents; or given free as a premium for sending us two new subscribers; or clubbed with the BEE JOURNAL a year—both for only \$1.40. Send all orders to the BEE JOURNAL office.

Convention Notices.

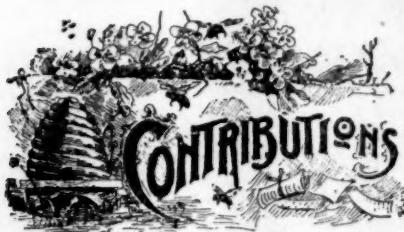
WISCONSIN.—The next annual meeting of the Wisconsin Bee-Keepers' Association will be held at Madison, on Feb. 8th and 9th, 1895.

Madison, Wis. J. W. VANCE, Cor. Sec.

TENNESSEE.—The next annual meeting of the East Tennessee Bee-Keepers' Association will be held at Whitesburg, Tenn., beginning on Thursday, August 16, 1894. All members and other interested in bee-culture are invited to attend. H. F. COLEMAN, Sec. Sneedville, Tenn.

KANSAS.—There will be a meeting of the Southeastern Kansas Bee-Keepers' Association at the apiaries of J. C. Balch, 7 miles south of Bronson, to be held June 15 and 16. Bring well-filled baskets and we will have a glorious good time. Plenty of pasture for horses, and shade and good water for man and beast. J. C. BALCH, Sec.

Bronson, Kans.



Results of Experiments in Wintering.

Written for the American Bee Journal
BY B. TAYLOR.

I can now give the final result of my wintering experience for 1893-94. I have felt more interest in the late experiment than any one I ever tried. The end is now reached, and hope and doubt are at an end.

I removed one-half of the hives from the cellar near the middle of March; at that time I found but one dead colony. The weather turned cold about the 20th and the balance of the bees remained in the cellar until April 16th. At this time many colonies had dwindled entirely away, both in the cellar and in those put out, while nearly all were reduced to very small colonies.

The colonies that made the big record in surplus last season were the ones that fared the worst. All had plenty of stores; the combs were entirely free from mold—there was no sign of diarrhea, and the bees, even in the hives where there was but a pint of bees, what there were, were bright and lively as in summer.

I had bought 14 colonies last fall that were mostly in box-hives; these bees had given their owner no surplus last year. He was discouraged and wanted to quit. From late experience I had reason to believe that his hives were in just that condition needed to winter well, and bring big, early colonies this year. They had not been robbed of their store of honey at the end of basswood, and had the means of keeping brood-rearing up even if there was but little fall honey.

Theorizing as above, I bought them, and made no mistake. Put into the same room with my other bees, they all came out, not only alive, but booming with bees that were ready to fly out and sting before they could be carried to the summer stands. I shall expect first-class early swarms from them.

My other bees I doubled up—generally two, sometimes three colonies together, and I now have 69 first-class colonies. I am feeding and giving more care than I ever gave bees before, as my next experiment is to find how near I can overcome adverse results of wintering by extra spring care.

The house-apairy wintered its colonies a little better than the cellar, which I attribute to the fact that packed early in a warm sawdust bed, they reared brood later. I am now feeding $\frac{1}{4}$ pound of sugar syrup each evening, and will continue this until near the end of fruit-bloom. Each colony is now in one section of a double hive.

The loss and doubling up I have explained, has left me with an abundance of extra hive sections, full of bright, clean combs, heavy with honey. Near the end of fruit-bloom I will unpack the hives and give each another section of these extra stores. This will give food to bridge over the period of dearth that oftentimes comes here between fruit-bloom and clover. I will discontinue feeding after this doubling-up, and with a large store of supers, filled with finished combs, leveled to equal size by the "comb leveler," I will await with hope and joy the white honey harvest.

It might be inferred from this rather seeming failure in wintering, that there is a shadow cast over my enthusiasm for bee-keeping. If any so imagine, they never made a greater mistake. The aparian sun never shone more brightly than now. I am now 64 years old, am not physically very strong, and I am going to free myself from every tangling care except practical honey-production. I know it can be made to pay well, with proper, intelligent understanding of the subject.

What we need is not so much an improved strain of golden Italian bees, as an improved "strain" of practical bee-keepers, that know what to do, and why. I am going to make myself one of them if my capacity and industry are capable of so much growth.

I feel certain that I have found, for me, the key to the wintering problem—large colonies of young bees; plenty of natural stores; and a warm, dry cellar or house-apairy. I now have the house-apairy and cellar, and next fall I am going to have the young bees, if life and health permit, for I know that by a little cheap, judicious feeding, late breeding can be secured when a fall flow of honey fails to produce natural results;

and when I prove these things, the readers of the AMERICAN BEE JOURNAL shall hear all the facts about how it was done.

Forestville, Minn.

Comb-Foundation for Honey & Increase.

Read at the Kansas State Convention

BY J. C. BALCH.

The question of comb foundation is of vital importance to every practical bee-keeper, and I think can be classed under three heads—the man that works exclusively for extracted honey, the man that works for section honey, and the man that works for an increase of bees.

We will take the man who works for extracted honey, first. We will suppose that he has all the bees he wants, and does not wish any increase. In this case he will use full sheets of foundation and a ten-frame hive; and we will suppose that his hives are all two stories high and filled with combs. Well, you say, what does he want with foundation? Just this:

At the first appearance of the June honey-flow, he will provide himself with an extra upper story for each colony, and fill every frame with full sheets of foundation. Then he will want a queen-excluding zinc for each colony. Then place the full sheets of foundation in the lower story, all but two or three, and be sure the queen is in the lower story; then place the zinc on the lower story so the queen cannot possibly get up; then put the brood on top of that, and the empty combs, if there is any on, in the third story, and if the two top stories are full of brood, so much the better.

There will be enough stay with the queen and what brood was left below, to keep her busy, and as fast as they draw out the foundation, she will fill it with eggs; and as fast as the brood hatches in the upper stories, the bees will fill it up with honey; and if the honey-flow is sufficient, in 21 days there will be no brood above the zinc, but there will be 80 pounds of honey, all sealed over, which can be extracted and returned to the hive. If the flow continues, they will fill them again in 10 days, and you are not bothered with brood when you are extracting.

In the second place, the man who works for comb honey positively must have foundation in his sections to insure straight combs, as he can't handle the sections when they are filled. Then he

must have foundation in the brood-chamber to have straight combs there, so he can handle the bees. Bees worked for comb honey will swarm if they get any surplus honey. He wants a one-inch starter in the brood-chamber to hive the prime swarms on, with half-sheets in the section-case, or better, take the case off the parent colony and put it on the swarm with the empty one under it, and place the swarm on the old stand, moving the old colony to a new place.

Then the man who wants to increase his bees, if he has three or more good strong colonies, must have foundation. Then when the weather gets warm—say the first of May—make all the hives two stories high, if they are not, and when the combs below are all filled with brood, remove half of them to the upper story and fill their places with full sheets of foundation, and when they are drawn out and filled with eggs, remove and put above, and fill their places with full sheets of foundation, till both stories are full of combs and brood. Then he can begin to increase.

He can take two frames from each hive, at dusk, and put them in a new hive with the adhering bees, and close the entrance with screen-wire, and set in a cool place till the next evening, when he can give them a queen, and he has a good average colony, ready for business. By replacing where he took them from, with full sheets of foundation, he can make a colony twice a week while the honey-flow lasts, or through the month of June, if he has queens for them; and queens are so cheap now that he can buy them cheaper than he can rear them, unless he is pretty well versed in queen-rearing.

Bronson, Kans.

After-Swarms and Prime Swarms.

Written for the American Bee Journal

BY W. HARMER.

The gain in knowledge that I, we, or all of us, get through the bee-papers, prompts me to write a few lines more on the prevention of after-swarms and the control of prime swarms, in answer to Mr. Coverdale's article on page 533. If it has not been very inconvenient for him to have given us the second contribution, I am glad that he thought it necessary to write in answer to my first.

I still condemn all traps, double hives, and the practice of destroying queen-

cells, as not being a sure way to prevent after-swarms (but I destroy queen-cells if I do not want them, as I hand over the bare combs of brood and honey to the nucleus hives, as heretofore described), but for the control of prime swarms in the absence of the apiarist, I shall be very glad to hear of the very best device known, whether it be a trap, entrance-guard, or anything else.

Mr. C. supposes I have 50 colonies that I cannot, on account of other occupations, be with every day, and asks what way I think will be the best to prevent worrying. I must say I do not know, as I have always been with my bees at swarming-time, or had some one to attend to them for me.

We are getting the two subjects mixed. The prevention of after-swarms and the control of prime swarms are two questions, according to my management. It was my method of working the former that was under discussion, and that I was so interested in, and not the latter, about which Mr. C. puts the above question, and to which I plead my ignorance, and would like information on. I ask which is best for that purpose—the entrance-guard of perforated zinc, or the Alley trap, or any other way you know of?

Manistee, Mich.

The Progress Made in Bee-Culture.

Written for the American Bee Journal
BY C. W. DAYTON.

As to whether it is best to use starters or full sheets of foundation in the brood-frames depends entirely upon circumstances. If one has more money than bees, and wishes to devote the bees to some other purpose than comb-building, such as storing honey, or increase of colonies, it may be the most satisfactory if not the most economy to buy foundation. Foundation insures straight worker-combs, but considering the cost of the foundation, together with the trouble of fastening it in the frames, I am led to wonder if naturally-built combs in a systematic manner are not in the end the most economical of any.

Nearly any set of foundation combs are nearer perfection than any set of naturally-built ones, but this does not hinder the latter from being good enough for practical work, or perhaps as good as the price of honey, or the general prosperity of the business, may afford. In fact, a bee-keeping outfit might be

purchased which would run the business into the ground, as it were, when, on the other hand, by using a cheap smoker, cheap lumber, and unpainted hives, or a home-made extractor, there may be as much honey obtained, and a neat profit remain. With these items may be included letting the bees build their own combs, and I prefer a strip of foundation rather than the wood comb-guides, both for economy and utility.

Then in getting good natural combs built out of swarming-time, requires a skill which the inexperienced may not possess, as there must be good queens, some honey being gathered, but not very much, and the empty frames must be specially arranged in relation to the condition of the brood-nest. It would be a puzzle for nearly any beginner to distinguish honey-gathering from robbing, and it would also be impossible to give a certain rule for putting these empty frames in the hives, because we would need to be on the spot to examine each individual hive, and seldom do two colonies need to be treated exactly the same. Some colonies may receive three empty frames, another two, and some none at all, and still the one which receives none may appear to the inexperienced as the colony to receive the most frames, judging from the amount of bees. Still a slow or old queen, or the lack of industry of the bees, may cause a bad job if the frames were put in. Experience will enable one to see these things by a glance.

If old bee-keepers did not write of such peculiarities which are encountered, a learner would not know what to look for, and after years of mistakes and groping in the dark he may of himself learn it from experience, and then perhaps imagine that he has made a discovery; in fact, become much bolstered up in his own acquisition of knowledge, until all records in the bee-papers and books are considered unworthy of his notice, when in truth it is a measure of his own ignorance.

So to-day we find bee-keepers of experience not knowing of bee-escapes, or perforated zinc, or reversible extractors. Of course it is admitted that there have been many inventions which might better never have been heard of, but to renounce all inventions and forsake the instructive literature of the times, is to go right back into the darkness of box-hives and strained and chunk honey.

Many bee-keepers progressed far enough to adopt movable combs and the honey extractor. They constructed hives after any fashion, and with the

all-prominent feature of shifting the combs from the hive into the extractor. Thus obtaining honey and selling it at the prices which had previously existed, was a money-making business.

The honey-producer who adopted those improvements in season to catch the big prices did as well as the man who ran his horse to death and secured a claim in Oklahoma. The price of honey has sought its level, and those bee-keepers now say the business does not pay. This is because they are standing in their old tracks, and are waiting for the old prices to return.

While they waited, time went on; the progressive bee-keeper invented system and applied it to his manipulations, and minor inventions, brought out since, and is as much as ever receiving a dollar for a dollar earned. As California bee-keeping does not suffer much from the effects of winter, California bee-keepers thought that the movable comb and extractor were all that was necessary, and they exchanged their books and papers for elbow-grease alone, in consequence of which they are fully a decade behind their Eastern brethren, and are now making a special move to the adoption of the Langstroth frame, so as to use standard appliances. Had they been subject to effects of winter losses and short crop, they would have studied as they worked; where, as it was, they simply sat by, waiting for another rainy winter season—the requisite for a honey crop. The present step of progress is caused mainly because of a sprinkling of more scientific bee-keepers coming into competition with them.

Downey, Calif.

The Cold Weather in the South, Etc.

Written for the "Orange Judd Farmer"

BY MRS. L. HARRISON.

After an absence of nearly four months, in the Sunny South, I am again among my bees. They are all here to answer to roll-call, with the exception of two colonies which were small and weak. They passed the winter upon the summer stands, with chaff cushions in the upper story, and the entrances open.

While traveling through southern Illinois, my eyes were gladdened by the sight of grand, large apple-trees adorned with pink bloom, but they gradually disappeared as the central part of the State was reached.

The unusual March weather brought disastrous results, especially in the South where vegetation was far advanced. Ice formed in many places in Florida, and frosts followed for several nights. I noticed this peculiarity in the vicinity of St. Andrew's Bay. Maderia vines remained green and thrifty during all the freezing weather, while here in the North they are turned black by a light frost in the fall. Also many hot-house plants on porches were not in the least injured, when ice formed $\frac{1}{2}$ of an inch thick. Clothes on the line froze stiff, yet oranges, nectarines, peaches and pears apparently were not injured in the least. Young cucumber vines, and similar tender vegetables, were killed. This immunity from frost was probably owing to the presence of large bodies of salt water in the vicinity.

There was another curious incident about this freeze. Four or five hills of potatoes would be found frozen to the ground, while as many following in the same row would show no effect of frost whatever. The effect of this March frost varies in different localities, and honey may come from an unlooked for source. Therefore, keep a close watch over all colonies lest they suffer for lack of stores.

It is very discouraging to see the blossoms killed, but bee-keepers are getting used to disappointments. In the North it is not entirely uncommon to see the ground covered with white clover blossoms which will not yield a pound of honey. Indeed, of late a good honey year in the North is the exception rather than the rule. Apiarists may be thankful if their bees are in a healthy condition, and free from foul brood.

WATER FOR BEES—DROUGHTS.

It is very important that bees should not be obliged to fly a long distance for water. In the early morning fill their drinking-vessels with warm water, and refill them occasionally until the sun becomes warm. Old paint or butter kegs will do very well for vessels. The water in part of them should be a little brackish! Use about a spoonful of salt to a pail of water. The cloths on the sunny sides of the kegs will be almost black with bees sucking out the moisture.

Drought prevails in this locality, and to-day (April 30th) there is a hot, scorching wind. The outlook for bee-culture is far from promising. The freeze late in March did much damage to fruit-bloom, and the drought injures what clover there is left. The bees are gathering pollen from the dandelions

and a few other flowers. As there has been a partial failure of the honey crop for several years past, many of the queens are old, and will be superseded. This morning I examined a colony that was reported very strong a month ago, but much weaker at present. The supposition was that they had swarmed. This was not correct, as no traces of young queens being reared could be discovered; the queen may have been lost about the time of the blizzard, and the bees neglected to rear one until the larvæ were too old to do so. When the combs were lifted out, no larvæ or sealed brood were to be seen. Then a comb containing eggs and larvæ was furnished so that the bees might have ready means at hand to rear a queen. I shall watch this comb with interest. I am of the opinion that no queen will be reared, for when eggs and larvæ are given to a queenless colony they disappear in a mysterious way. Why they disappear may be owing to the fact that there may be no nurse-bees, and the insects eat the eggs, and humanely remove the young larvæ.

When a comb of young larvæ is given to a queenless colony, the nurse-bees should be taken with it. If not, give sealed brood first, and when the young bees have left the cells, and are of the right age for nurse-bees, give them eggs and larvæ that they may rear a queen.

The rain is now beginning to fall. Should it continue until the ground is thoroughly soaked, the prospect for honey may materially change. In order to make bee-keeping pay, the hives must be full of bees, at the time there is surplus honey to be gathered.

Peoria, Ill.

Bees and Pollination of Blossoms.

BY PROF. A. J. COOK.

[*A Lecture Delivered Before the Southern California Horticultural Society at Pasadena, on May 3, 1894.*]

I am glad that I was asked to open the discussion on the subject of pollination. It is one that has interested me much in the past, and one to which I have given some thought, study and investigation. It is, I believe, one of first importance to the practical fruit-grower, and, when it is rightly understood, will change not a little the views and practice of many of our pomologists.

I need hardly state here that the essential organs of every flower are the

pistils and stamens; and that for the plant to fruit, it is absolutely necessary, in most cases, that the pollen from the anther, or tip of the stamen, shall reach the stigma or end of the pistil, that it may send its tubular growth down to influence the ovules in the ovary at the base of the pistil. Unless these pollen-cells reach the ovules, the latter are unable to develop, and in nearly all cases there will be no fruit. It is possible that in very rare cases the so-called fruit may develop without pollination, but this is never true of the seeds. This process is known as pollination, or pollenzation. Fructification and fertilization are also used, but the latter may be used and is in another sense, and is undesirable. We may speak of fertile stamens when they are able to produce pollen, and of fertile pistils when they are able to bear ovules.

It is also known that many plants, including most of our cultivated fruits, especially those with showy or sweet-smelling flowers, must receive the pollen from other varieties, or pollination will be imperfect, or entirely ineffective. That is, if the stigma of any flower receive pollen from the same flower, or from flowers of the same tree, or from those of trees of the same variety, either no fruit will be produced, or if produced it will be imperfect, perhaps small and seedless. In other words, much of our fruit-bloom, that it may bear perfect fruit, or any fruit at all, must be pollinated from some other variety; as Bartlett from Anjou, or Anjou from Clairgeau, etc. The arguments in favor of this view are drawn from the structural peculiarities of the flowers, and also from experiments.

In many flowers, especially irregular ones like the orchids, the peculiar form of the flower precludes close pollination, and makes the presence of insects necessary to any possible pollination. In dioecious trees—those in which the pistilate flowers are all on one plant, and the stamine all on another—cross-pollination is absolutely necessary, and unless pollen is carried by the wind or insect, there can be no pollination. The willow and poplar are examples of this kind of inflorescence.

You all know that some of our common varieties of strawberry are almost wholly pistilate. In other plants termed monocious, the flowers are all either pistilate or stamine, but both kinds are on the same tree or plant. In such cases there must be transfer of pollen, but not necessarily from a different tree.

The oaks, walnuts and sycamores are all monoecious.

In many hermaphrodites, plants with perfect flowers, where each flower bears both stamens and pistils, there is a very curious provision which insures cross-pollination.

In some plants called dichogamous, the pollen is ripe, and discharged either before or after the stigma is ripe, or ready to receive it. This is seen in some of our pears, and is a common peculiarity among plants. Other hermaphrodites, known as heterogonous, have two kinds of stamens and two kinds of pistils, one long and the other short. One set of flowers have long pistils and short stamens, and the others short pistils and long stamens. In these cases insects transfer the pollen, and cross-pollination is insured.

In all these cases, we see that nature has fenced against close pollination, or as some one has suggested, nature seems to abhor close pollination. The flowers have so developed in the process of evolution, that cross-pollination is enforced, and in the last case we see that insects have controlled in giving trend to the development. The other argument comes from direct experimentation, and proves that many perfect flowers require cross-pollination. Flowers were emasculated just as they were opening, before the pollen was ripe. That is, the stamens were all removed. When the stigmas were ripe for the pollen, they were dusted with pollen from other blossoms on the same tree, from those of other trees of the same variety, and from those of trees of other varieties. Other blossoms were covered, and the stigmas dusted exclusively with pollen from their own stamens.

These experiments gave different results with different fruits, and with different varieties of the same fruits. Some varieties are perfectly sterile, and others perfectly pollinated with their own pollen, or that of the same variety of trees, while others were imperfect in form and size, and seedless if not pollinated with pollen of another variety. Many varieties, especially of plums and pears, will bear no fruit, or very imperfect fruit, if not cross-pollinated.

EXPERIMENTS IN MICHIGAN.

While in Michigan, I tried at the State Agricultural College, numerous experiments, as did my friend and colleague, Dr. W. J. Beal, that we might determine just how necessary this cross-pollination might be. Dr. Beal experimented with red clover, and I with red and Alsike

clover, and with several cultivated fruits, as cherries, plums, apples, pears, strawberries, raspberries and blackberries. Sets of blossoms of the same number were marked on contiguous plants or twigs, and one or two of the sets just prior to the opening of the flowers, were closely covered with cheese-cloth, while the other set was left uncovered.

In several cases it was noted just when the stigmas were ripe, and bees were caught and enclosed in one of the cheese-cloth bags surrounding the flowers. The bees were watched and seen to work on the flowers in several of the experiments. The results published in the Report of the State Board of Agriculture were surprising. The covered flowers, where bees were excluded gave from no fruit to very little, except in the case of strawberries and blackberries, where there seemed very little difference, while the uncovered and covered, where bees were enclosed in the bags with the blossoms, bore well.

In some of the cases, as with cherries and plums, the contrast was remarkable. In several of the experiments where bees were admitted under the covers, especially red clover, where bumble-bees were enclosed in the sacks, the fruitage was equal to that of the uncovered plants.

These experiments seemed to show conclusively that cross-pollination was necessary, and that bees and other sweet-loving insects were a most important factor in securing a full crop of fruit.

It has been objected to the above experiments, that the very facts of the covers vitiated the results; that very likely the covers themselves would partially or wholly prevent the development of fruit. I would reply that in hand pollination such is not found to be the case, and that in some of the above cases the flowers were covered, and bees caught and put inside the covering sacks, and a good yield of fruit secured.

EXPERIMENTS AT POMONA COLLEGE.

Upon coming to this State and county, early this year, it occurred to me that it was very desirable that similar experiments should be conducted at this place. That a thing is true in Michigan is no certain proof that it is so under the very different conditions of California. If cross-pollination is essential here, where fruit-culture and bee-keeping alike are important industries, it is very important that it should be generally known, that the fullest benefits of such knowledge may be secured. I therefore com-

menced some investigations, which though less extensive and complete than I should like, and less so than the importance of the subject demands, are as much so as the time at my command would permit. Some of the experiments, indeed we may say all of them, are yet in progress.

Among deciduous fruits I have experimented on plums, cherries, apricots and pears. I am also investigating the pollination of the orange and lemon among citrus fruits. As yet I can only report on the deciduous fruits, and of these the report will be but partial.

The experiments were conducted in much the same manner as in Michigan, only in every case I put bees in one of the sacks surrounding the blossoms, and in one experiment with the plum I removed one sack when the bees were working in force on the tree, and marked the blossoms on which I saw the bees alight; covering all up again as soon as I ceased watching them. I caught some of the bees and examined them with a lens, and found their heads, legs and bodies well dusted with the pollen. A similar examination of the flowers showed that they had received pollen from the visiting bees. The number of blossoms in each experiment varied from 32 to over 100.

As soon as the blossoms withered I removed the covers, and a week later found what seemed healthy developing fruit in abundance on all the twigs. Thus we see that any lack as the result of close-pollination does not show at once. Last Friday I examined all the twigs. The plums—two different trees in different orchards—the cherry and the pears (two trees) show not a single fruit on the twigs from which all bees were excluded, while those covered with sacks in which bees were put, give on plum in one case three, in the other five; the cherry five; and the pear six and eight, respectively. The limbs uncovered from the same number of blossoms give eight and five on plum; the cherry seven; and the pear eight and eleven.

It will be observed that only from one-fourth to one-twentieth of the blossoms under observation have developed fruit. You all know that this is always so. The blossoms are in clusters of five, more or less, while the fruit, if we except crab-apples, is usually single. In case of oranges, how very few of the blossoms come to fruit.

It is a curious and suggestive fact that all of the four covered blossoms that I actually saw the bees visit while uncovered and under observation, have up to

this date large, fine plums. The apricot tree is a curious exception. The number of blossoms on each twig under experiment was 32. The twig covered all the time of bloom showed, last Friday, ten fine apricots. The one where I put the bees inside the sack, six; and the one uncovered, only five. Here the cover would seem to have been an advantage, but we can hardly see how this could be true. It seems certain that this variety of apricot at least does not require cross-pollination.

Another fact observed makes these experiments all the more interesting. I saw many thrips on all the blossoms, especially on the oranges where I saw ten at one time on a single blossom. These minute insects would almost surely have carried the pollen from the anther to the stigma of every blossom, and without doubt in some cases from the anther of one flower to the stigma of another close by. Yet all the blossoms to which no bees had access, if we except those of the apricot, failed to develop, and were presumably non-pollinated. This seems to demonstrate, or at least strongly indicates, that these fruits require cross-pollination, and that some agency is required to accomplish it.

As already stated, I am not ready to report on the orange. Several of my students and myself are experimenting with orange-blossoms. The pollen is applied artificially by hand, and each stigma receives exclusively either the pollen from its own blossom, or that from other blossoms on the same tree, or that from other trees of the same variety, or again that from blossoms of other varieties. We are waiting results with great interest. It is a pretty well settled law that nectar, showy blossoms and fragrance in bloom, are all indications of the necessity of cross-pollination, and are so many invitations to the nectar-loving insects to come to the aid of the needy and waiting blossoms. In this view we should expect to find the orange one of the most dependent of fruits—one that without the aid of bees and other sweet-loving insects would be barren and unfruitful. It goes without saying that the settlement of this question experimentally is of great moment to Southern California.

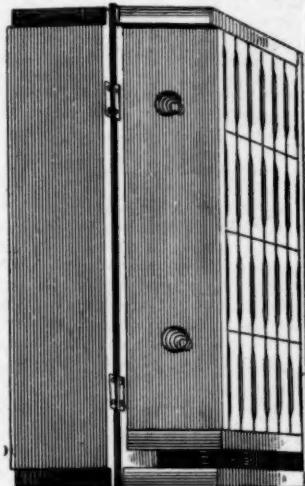
(Concluded next week.)

A Binder for holding a year's numbers of the BEE JOURNAL we mail for only 50 cents; or clubbed with the JOURNAL for \$1.40.

Improved Super or Section Holder.

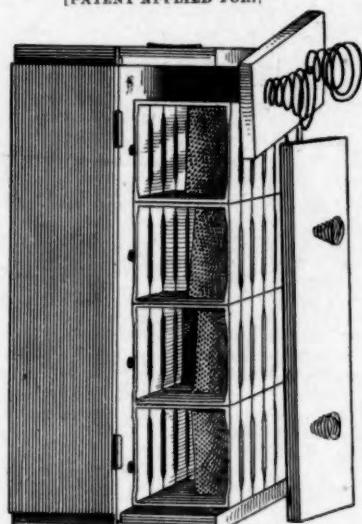
BY A. C. TYRREL.

The accompanying illustrations of my improved super or section holder, require but little explanation, but for the



[PATENT APPLIED FOR.]

No. 1.—*The Tyrrel Section-Holder.*



No. 2.—*Clamping-Boards with Coils.*

benefit of novices I offer the following explanatory remarks:

No. 1 shows the super with sections and clamping-boards in place, being firmly wedged when the door is closed endwise and sidewise. In cut No. 2 are

shown the clamping-boards with coils attached, the only extra attachment used in this super.

Wooden separators should be used in all supers, which prevents bees bulging the combs; if not used, bees will build crooked combs in *any super made*.

I use no wedges or loose bottom-bars, always requiring great care in nailing to fit the old-fashioned supers. The bottom of the super is constructed of thin lumber, through which are bored 28 holes of sufficient size to admit the bees freely, and only to the inside of the same. This prevents the bees sticking the underside of the sections with propolis, and thus obviating scraping every section before going to market. Every one who has used loose bottom slats or T tin-rails, knows that if honey is coming in slowly every section will be stuck fast; every little crevice filled with propolis, and the sections cannot be removed without great care and labor.

To remove the sections, open the door and remove the long clamping-board in front of the sections; a slight pressure with one hand releases the tension of the end clamping-board; the first row of sections can then be removed; then the second, and so on until all are removed; thus every section can be taken from the super without removing the cover or lifting the holder from the hive, with less trouble and greater speed than from any super on the market.

The salient features of this super are:

1st. No new and expensive machinery is required in manufacture. Any one handy with hammer and saw can make it.

2nd. Simplicity, cheapness and ease of manipulation.

3rd. Different sizes of sections can be used.

4th. Does away with the use of a honey-board.

5th. It is the easiest super to make, as it has but few parts.

6th. Can be used on any dovetailed hive.

7th. Evenness of surface, allowing every section to be tightly wedged.

Madison County, Nebr.

Capons and Caponizing, by Edward Warren Sawyer, M. D., Fanny Field, and others. It shows in clear language and illustrations all about caponizing fowls; and thus how to make the most money in poultry-raising. Every poultry-keeper should have it. Price, postpaid, 30 cents; or clubbed with *BEE JOURNAL* one year, for \$1.10.

Heddon Further Replies.

The following we take from *Gleanings* for May 15th, as we desire to give Mr. Heddon opportunity to explain in full the charges made against him in that paper:

On page 335 we gave a brief synopsis of an article sent in by Mr. Heddon; but the latter feels that he should be allowed to speak for himself. Wishing at all times to do him full justice, we have decided to publish the article in question. To this we make no reply because we do not desire to prolong the matter any longer than is necessary.

DEAR MR. ROOT:—As it seems to me your footnotes are unjust in their inferences, and neglect to touch the principal arguments of my article, I desire to refer to the matter again.

Your first sentence regarding "those who have purchased honey of me before," is not fair, because I did not refer to persons who purchased honey of me "before," but to those who purchased at the same time, and both before and after, and out of the same lot of that shipped to Mr. Willard and others. You publish an entire copy of a postal card from one G. F. Ayers. I do not remember Mr. Ayers; and while it would not be strange that I might forget a customer, I have been back over my alphabetically filed orders for 1891, '92, '93, and '94, and I cannot find the name. But I am glad you published Mr. Ayers' card, because it places you under honorable obligation to publish reports from others of my customers.

You asked how about honey that I shipped before 1893 and 1894. I have never shipped ANY adulterated honey to ANY one; but your asking this question is "prima-facie" evidence that you are not depending on chemical analysis, but hearsay, for your suspicions. I have been apprised of the source of your fancied evidence.

You asked me to state "what in the world bee-keepers are to do." The answer seems to be plain—do the best we can. This brings us to the real point at issue—the point I first began to discuss at our State convention, and which discussion you assumed to be a defense of adulteration. If you do not agree with me, that making arrests of members of any class of honey-dealers, whether it be city dealers or producers, will not stop adulteration, and thus do no good, but through newspapers destroy the reputation of our product in the minds of consumers, why don't you arrest some one? Two arrests have been made in Ohio, and in both cases, I am sure, the arrested parties were innocent. I might have concluded that my honey had been removed, and other, which was adulterated, placed in the cans, were it not for the fact that I had been and am now quite certain that the chemical analysis of the day is a combination of honest error and conscious inability, as proven in the Jankovsky case. Certainly, I was well aware that the Fish honey was pronounced slightly adulterated with sugar, and not largely mixed with glucose. I thought of all this. But you do not seem to see the point. The point is, that, NOTWITHSTANDING the fact that "it was sugar adulteration," and "very slightly," and "such adulteration very difficult to determine," the chemist and the court officials hesitated not, but have secured their fees, and Mr. Jankovsky is some \$75 out of pocket, and henceforth can never stand up in

court and say he never was arrested and convicted. Not only his reputation, but also his business has been damaged.

In your endeavor to lift up Mr. Fish with your lever ("Gleanings"), using me for the fulcrum, it seems to me you deal a terrible blow to courts and chemists. Although the chemists were not able to tell, they either didn't know they were not competent authority, or else they had no respect for the rights of the citizen. My former reference was nothing more nor less than to show that the present science of chemistry is now convicting and fining innocent people, and no amount of explanation as to how their errors came about changes the force of my citation.

I next come to your statement as to what I would have seen had I "been to the Washington and Chicago bee-keepers' conventions, when Prof. Wiley was warmly welcomed by bee-keepers." I wish I had been there. I should be able to say, "I am glad to meet you, Prof. Wiley. I beg of you to remember that you are now shaking a consistent hand; I never called you a 'liar.' Prof. W., let us sympathize with each other; we have both been attacked by bee-journals. You are back in the 'band-wagon,' please instruct me as to how you got there!"

I did not call Prof. Wiley a "liar," but I said he either was one, or else he was at one time worse abused by bee-journals than I am being now.

I now come to the point of your having honey in cans, and the cans in boxes, and the cover of the box having tacked upon it one of my express tags. I do not doubt it, because I put them on that way—an easy way to imitate. The tag is no doubt mine; but if it is nailed upon my cover, that cover resting on my box, that box containing my can, the honey in that can is not my honey provided it is not pure and of first quality of its grade. (By this word "my," I mean having once been mine.) I now mail you a sample of my pure honey, the same that I shipped to all my customers, and I desire that you compare it with the honey in those cans, and then return to me a sample of that in the cans you have. You can return in the same mailing package, and I enclose stamps for postage. Also please state in "Gleanings" how they compare.

In your next paragraph you bring into public print what you claim I wrote in a private letter to some one. I do not remember to whom I wrote such words. I may have done so, however. We will admit that I wrote those words in a private letter to some person. Of course, we all know that Prof. Cook is far from being a "fool," or "silly," and that it requires nothing short of genius bordering upon the "consonate" to make so much of a seeming case against me as you have done, with nothing real for a ground-work. If I wrote those words, I am sorry for the mistake, and must give as my only excuse that I then had what I now have in my mind, the thought that it is both silly and foolish to hope for general benefit to bee-culture to grow out of the persecution of honey-producers. On the other hand, if the object is NOT to benefit the bee-keepers, but to temporarily injure a competitor in business, "foolishness" immediately changes to conspiracy. However, speaking of your not sending me proof, I see no logic, nothing wise and just, in retaliating upon the "weak," "foolish," and "criminal," by withholding JUSTICE from them. I very much admire the following quotation from a prayer: "Lord, bless the wicked; thou has blessed the good by making them good."

I have not said the chemists of our land are all ignorant and vicious, although we all know enough of mankind to know that chemistry, perched upon a good salary, and well obscured from the masses, is not necessarily always perfectly honest nor allwise. We know one man has been fined heavily, and immeasurably injured, through either the ignorance or vice of chemists.

You say you have enough of my honey that speaks for itself, to go around. I say you haven't enough of my honey to support one bee 15 seconds, that, sent out as samples, would not do honor to me as a producer, and to our business at large. I mailed samples to many of my customers, and I do not remember a sample sent that did not bring an order. If there are any of my customers who will say the goods were not like sample, I want to hear from them through "Gleanings;" but if such statements should be made, I want to know, as I do in the case of Mr. Ayers, why nothing was said to ME; and I further desire to have about 46 of my other customers state what they think of my honey, in "Gleanings."

By re-perusing the Fish-honey advertisement, I find it reads as follows:

We offer you honey, put up in original packages, as received from the apiary, at from $4\frac{1}{2}$ to 6 cents per pound, depending on quality and style of packages. Can sell you any quantity you wish, from 60 pounds to a carload. Samples mailed if so requested. Will thank you for a response.

Respy yours, S. T. FISH & CO.

Above the above, on the card, is the following:

We are agents for the Bee-Keepers' Association, and any honey we sell we guarantee strictly pure and unadulterated.

The wording of this card exhibits confusion, and that the firm is already on the defensive, does it not? Mr. Fish is a scholarly man of business wisdom; and the way this card flatters, we would know that not only the firm, but their customers, had been hit. "From $4\frac{1}{2}$ to 6 cents," even in "60-pound lots." "Cheap." Is this honey (2 cents below the lowest of my prices for the same grades) adulterated because it is cheap, or cheap because the word "adulterated" has been published too many times?

Your references to the test to which chemistry has been put, are not at all conclusive to me. The tests should be made by persons on one side who will, for the time being, lay aside all desires as to results. I am well satisfied that there are honeys, pure from the blossoms, that, under the chemical test, will answer the chemists' requirements for glucose, and I have no doubt it can be proven by honest experiment. I was a witness to one glucose experiment at Lansing—one which has been cited as a case proving the ease of detection. A portion of reddish honey was divided into three parts—a small part, medium part, and a larger part. White confectioners' glucose was mixed with each, and the shades of color afforded an unerring guess; for, when brought in, we were told that one lot of honey was mixed in different quantities, with equal amounts of glucose. I wonder if all the other tests were as severe as this one. And this test has been cited in your paper to show the ease of detecting glucose by taste. The glucose we have tasted in our confectioner's shop here has no taste at all that the aromatic flavor of honey will not annihilate at once. I tasted of the Lansing experiments, and could unerringly tell, by appearance and taste both, which had the most glucose (the less of flavor being most diluted with the comparatively tasteless). I

know that I have tasted pure honeys that I could not tell from any one of these glucose samples. If others could, I could not; but I could unravel that experiment with the greatest ease. When the chemist is **REALLY** tested, we shall then know whether or not his reports are competent to fine and send people to jail, or, what is worse, to public disgrace. I am far from having a desire that present chemistry cannot detect glucose in honey with sufficient certainty to warrant conviction; but, fully believing it to be true, I have a stronger desire that no more honey-producers should be persecuted and injured while all bee-keepers are also materially damaged.

Your statement that my utterances have defended the practice, are wholly unfair. That is another disputed question, I maintaining that they do not defend the practice, and asserting positively that such was far from my intentions. While I said that bee-keepers' unions could not stop one little honey-producer, the idea I wished to carry was that they cannot stop the practice with anybody. What harm can it do for me to make this statement to bee-keepers when the city adulterators (all the adulterators there are) know it full well beforehand, and after the Union has previously, for a whole year, admitted it by its non-action? When it was first proposed to put this load upon the Union (an offspring of my own, and to which I am greatly attached), I objected because I thought it would weaken and destroy the already proven efficiency of the Union in the line of work for which it was originated, and I think so still. What better evidence of my original statement, made at the time I opposed the change in the Constitution, need I adduce, than the fact, that more than a year has passed, and the Union Board has proven by its actions that it dare not even test the truthfulness of my assertion. Had I been Mr. Jankovsky, and had I been arrested and fined by any pure-food commission, bee-keepers' union, or any once else, it would cost such commission, or union, or person, a very large sum before they were through with me.

The logical genius of law is a very different thing from the prejudices of those who persist in the adulteration cry. We do not differ, and never have differed, upon the right and justice of adulteration; you have only made it APPEAR so; we differ greatly as to policy of action, and we do not come any nearer to the real point at issue, because of the malicious prejudice growing out of your misunderstanding or misrepresenting the true state of affairs. This is the way it seems to me. Suppose we discuss the real point at issue, as to what is best to do and not to do, leaving personal allusions out of the case for awhile, or, at least, placing them on another page.

Finally, since you have begun publishing contributed evil words concerning me, are you willing to publish several letters I have, stating, with gloves off, what the writers think of you? If you will open a column for innuendoes against you and me, you may come to the conclusion that both may be loved for the enemies we have made.

Dowagiac, Mich., April 2. JAMES HEDDON.

[The following is a copy of an affidavit sent us at the same time.—EDITOR.]

I, Charles Heddon, son of James Heddon, do hereby swear that I took from the hives in my father's two bee-yards, and in honey-house did extract all of the surplus honey produced in said years, during the years 1882 and 1883; and, further, that I put all of the said honey into 60-pound boxed tin cans, and

superintended the shipping of nearly all of said honey. That I personally took from the hives, extracted, placed in cans, and shipped all of the 18 cans of honey sent to Mr. George G. Willard, of Cleveland, Ohio, during 1893, and to my certain knowledge all of said honey was free from any adulteration.

CHARLES HEDDON.
Subscribed and sworn to before me this 4th day of April, A. D. 1894.
ABNER M. MOON,
Justice of the Peace in and for Cass County.

[In addition to this we expect to allow Mr. Heddon reasonable space for reply to the two editorials—one on page 335, and the other on page 382, in next issue. If we attach no foot-note this will give Mr. Heddon the "last say," and certainly all that one could ask for. We desire that Mr. Heddon shall have a full chance to vindicate himself, and toward this end we publish a letter received that will explain itself.—EDITOR.]

One year ago this last winter my stock of extracted honey gave out. So I sent an order to Heddon for two cans of his amber honey. I want to say that I never had any honey that gave better satisfaction than this. My customers were well pleased with it, and they had been using clover and basswood honey from my own bees.

Manchester, N. Y., May 2. EZRA G. SMITH.



Do not write anything for publication on the same sheet of paper with business matters, unless it can be torn apart without interfering with either part of the letter.

Surplus from Fruit-Bloom.

My bees have stored some surplus from fruit-bloom. I am going to build up to 400 colonies as fast as possible. White clover is just beginning to bloom, and bees are working on it.

F. H. RICHARDSON.
Laclede, Mo., May 11.

The Australian Gum Tree, Etc.

We are having some strange weather for May; cherries are ripe on some of the trees on our place; honey is coming in quite plentiful, yet it is hard to tell what the amount of our crop is going to be this year. I do not expect as much as we got last year by a good deal, still, we will get more money for a short crop than we could have gotten for a big crop last year.

The honey that is now coming in is much nicer than that harvested last year. I never saw the Australian gum trees bloom so profusely as they are doing, and have been doing for the past six weeks. They are a wonderful tree; they are truly Australian, for they are different in many ways from the trees that are natives of this country. It has been said that the

honey from these trees is quite dark; I have seen it so some years, especially when the trees bloomed in the winter or early in the spring. This year it seems to be light.

It has commenced to rain to-night—the first we have had for several weeks. It will damage the hay that has been recently cut, beside hurting the strawberries and cherries. On the other hand, it will be beneficial to a multitude of crops.

W. A. PRYAL.
North Temescal, Calif., May 13.

Honey Crop Indications Favorable.

My bees wintered well, and so far are doing first-rate. The indications are favorable for a crop of honey, as white clover did not winter-kill. My honey crop was good last year. I had about 4,000 pounds, all white honey.

L. HIGHBARGER.

Leaf River, Ill., May 10.

Pairing for Each Birth.

May it not be said that all worker-bees are the result of a "pair for each birth?" "Pairing," technically speaking, is only the union of the germ and sperm cell, and this takes place every time a worker-bee comes into being. The drones are an exception, but the exceptions are not sufficiently numerous to nullify the general statement.

This is not written to open discussion, but in the interest of a clearer understanding.

St. Joseph, Mo. EMERSON T. ABBOTT.

Removing Wax from Clothes.

As Mrs. Atchley has asked some one to answer this question for her through the AMERICAN BEE JOURNAL, I will give my plan of removing the wax or bee-glue out of my clothes when I get either on them.

Chill the wax that is in the clothes in ice-cold water, and while the clothes are in the very cold water, the wax or glue will crumble out clean if the wax spots are rubbed or washed while in the water.

Several years ago I hit on this plan, and it never fails with me. If I get any wax on my clothes I am very careful not to get any hot water on the wax to cause it to melt into the cloth.

W.M. McEVORY.

Woodburn, Ont., Canada.

Prolonging the Life of Bees.

Most authorities make the life of a bee in the active season to be about six weeks. It is also an acknowledged fact that during winter, or while quiet, they attain to a much longer life. Now I wish to suggest that the experiment stations give us some facts about the possible life of a bee. Will inaction in summer prolong life the same as in winter? Will the colony supplied with plenty of honey and pollen in the hive, and near access to water, accumulate bees until the honey-flow comes? Will a

colony kept in constant uproar by stimulative feed wear themselves out so as to be weak when the honey-flow comes?

Some positive knowledge in this line would be a great help in preparing for the honey-flow. Can the surplus bees, the first of May, be stored in a cellar until the basswood flow in July, the same as in winter? My experience has given me an impression that there is such a thing as prolonging life if the bees are kept quiet when there is no honey to be gathered. L. M. BROWN.

Glen Ellen, Iowa.

My Bees Wintered "Boss."

My bees wintered "boss" the past winter. I lost one colony out of 46. They were placed in the cellar on Dec. 1, 1893, and taken out on April 16, 1894. Part of them had nearly all buckwheat honey, and came out in good condition. The fruit trees are blooming, and the bees are booming. Prospects are good for a good crop this season. Alsike clover is becoming our main stay for white honey here. Our neighbors think it makes good fodder for horses and cattle. I think so, too. CHAS. B. ALLEN.

Central Square, N. Y., May 14.

Results of the Last Season.

Last season I started in the spring with 36 colonies, some of them being very light in stores as well as bees, and they increased to 88, all good and heavy colonies; and I took from them 1,950 pounds of comb honey, and extracted 700 pounds. They are now all on the summer stands, and they seem to be all right.

GARDNER WOLCOTT.

Eldorado, Wis., May 14.

Bee-Keeping in Colorado.

I have been here only through one season, so do not know as much about the country as I would after a longer residence here, but I will give my impressions.

Colorado is spoken of highly as a bee and honey-country, and my observations lead me to believe that in localities where alfalfa abounds it is a good honey-country, but outside of irrigated lands there is nothing to produce honey, as it is an arid country, and except a few flowers in the spring, there is nothing for bees to gather honey from, as everything dries out later outside of irrigated lands.

As to alfalfa, it is a fine thing for honey, and were it not that it is always cut for hay just as soon as it is in full bloom, it would pay well to keep bees in localities where it is plentiful. The honey is No. 1, very white, of fine flavor, and owing to the dryness of the atmosphere, it is very heavy and of thick consistency. It is so thick that it is difficult to extract, and there is very little extracting done in this vicinity. I know of only one extractor in this part of the country.

In some localities here bees gathered con-

siderable dark honey from oak last fall. Those who have kept bees several years say it is the first dark honey they have ever secured.

Bees generally winter well here. It was not very cold here the past winter. It was about zero two or three times, ranging most of the time from 15 to 30 degrees above. We had considerable snow—a fall of over a foot on Feb. 21st, which with what we had when it fell, made about two feet of snow at that time.

The greatest drawback to the business here is the price—No. 1 comb honey will not bring over 10 cents a pound, and there is no demand. It has to be shipped out of the country to dispose of if at all. We are 35 miles from a railroad, and when you get to the road freights are very high here in the mountains.

As to the outlook for the bee-business here, it is not very flattering, as nearly every ranchman has a few colonies of bees, and as the pasture is limited, with the increase of bees, I think the country will soon be overstocked.

If any of the readers should desire to know more about the country, and will write me, enclosing stamp for reply, I will answer them to the best of my ability.

Paonia, Colo.

L. G. PURVIS.

Honey & Beeswax Market Quotations.

ALBANY, N. Y., Mar. 23.—The honey market is very slow now. The demand is about over on comb. Some extracted wanted at 6c.; 1/2 dark color, 5c.

Beeswax, 26@27c.

H. R. W.

BUFFALO, N. Y., May 14.—Trade is very slow, and we have still a liberal stock on hand. We quote: Fancy comb, 13@14c.; choice, 11@12c.; dark and common grades, 8@9c. Beeswax, 25@30c.

B. & C. Co.

CHICAGO, ILL., May 10.—The market for comb honey is not of large volume at this season of the year; a fine article of white comb brings 15c. in pound sections. Extracted slow of sale, at 4@6c. Beeswax, 25c.

R. A. B. & Co.

CHICAGO, ILL., Mar. 24.—The honey market will be very quiet for the balance of the season. We will not do much business until new honey comes in. We cannot quote prices but will obtain the best possible price on what little stock we will sell until early fall. Beeswax is very active at 25@26c. J. A. L.

CINCINNATI, O., May 7.—There is a slow demand for extracted honey at 4@7c. Prices for comb honey are nominal at 12@14c. for best white.

Beeswax is in good demand, at 22@25c. for good yellow. C. F. M. & S.

KANSAS CITY, Mo., Apr. 6.—We have had an exceedingly slow trade on honey this season, and prices ruled comparatively low. We quote to-day: No. 1 white comb, 1-lb., 14@15c.; No. 2, 13@14c.; No. 1 amber, 12@13c.; No. 2, 10@11c. Extracted, 5@7c.

Beeswax, 20@22c.

C.-M. C. Co.

List of Honey and Beeswax Dealers,

Most of whom Quote in this Journal.

Chicago, Ills.J. A. LAMON, 44 and 46 So. Water St.
R. A. BURNETT & Co., 161 South Water Street**New York, N. Y.**F. I. SAGE & SON, 183 Reade Street.
HILDRETH BROS. & SEGELEN,
28 & 30 West Broadway.
CHAS. ISRAEL & BROS., 110 Hudson St.**Kansas City, Mo.**HAMBLIN & BEARSS, 514 Walnut Street.
CLEMOMS-MASON COM. CO., 521 Walnut St.**Albany, N. Y.**

H. R. WRIGHT, 326 & 328 Broadway.

Buffalo, N. Y.

BATTERSON & CO., 167 & 169 Scott St.

Hamilton, Ills.

CHAS. DADANT & SON.

Cincinnati, Ohio.

C. F. MUTH & SON, cor. Freeman & Central avs

Advertisements.

WANTED—A situation in a California apriary. A year's experience. Correspondence solicited. Address, Photographer, Box 384, 21Alt DYERSBURG, TENN.

FOR SALE—1000 or less, Mty Brood Combs, 10c. each — packed for shipment. **Bee-Keepers' Supplies, etc.** Write for Circular. **JNO. NEBEL & SON**, 18A4t HIGH HILL, Montg. Co., MO.

IMPORTED 1893 CARNIOLANS, \$5 each; 1893 home-bred tested, \$2; untested, bred from imported mothers that produce only gray bees, \$1. Add \$1 each for foreign countries. **By mail anywhere.** 21D10t MRS. FRANK BENTON, Charlton Heights, Md.

Mention the American Bee Journal.

I Have 182 Colonies

Italian Bees, in 8-frame Simplicity Dovetailed Hives—at \$4.00 per colony, or \$3.50 when 10 or more are taken at a time. Address,

JENNIE ATCHLEY,
21A2t BEEVILLE, Bee Co., TEXAS.
Mention the American Bee Journal.

G. O. TUNISON, M. D.

Oxford, N. Jersey. May 3rd, 1894.
FRIEND BEE-KEEPERS—My bees are storing fruit-blossom honey in the sections now. I have 50 SELECTED QUEENS—large and prolific—last year's rearing—of this hardy and industrious strain of Italians—that I will ship by return mail, at \$1.50 each. Order one or more before they are gone. I know they will give you complete satisfaction
Yours with best wishes,

21A3t **G. O. TUNISON.**
Mention the American Bee Journal.

Austrian Diamond Finger-Ring.

This ring is a diamond cut brilliant, for either lady or gentleman. The setting is what is called "Tiffany," which is the latest used for genuine diamond rings. The ring itself is made of 18-k. solid rolled gold, and set with an Austrian Diamond of "purest ray serene," and of prismatic rainbow brilliancy.

This Ring is one of the best as well as the handsomest rings ever made or sold for the money.

Price, postpaid, \$1.00; or we give it as a Premium for sending us **Two New Subscribers** to the "Bee Journal" for one year at \$1.00 each; or we will club it with the "Bee Journal" for one year for \$1.60.

This Engraved Band Ring is made from best solid 18k. rolled gold stock, and each ring is warranted perfect. The engraving is done by hand, and shows great skill. It is exceedingly fashionable, and will please any one who secures it.

Price, postpaid, 60 cts.; or given as a Premium for sending us **Two New Subscribers** to the "Bee Journal" at \$1.00 each; or clubbed with the "Bee Journal" a year—both for \$1.40

This Plain Band Ring is a very pretty one. It is full 3 pennyweight, and made from best 18k. solid rolled gold stock. **Price**, postpaid, 30c or given as a Premium for 1 New Subscriber to the "Bee Journal" for a year; or clubbed with the "Bee Journal"—both for \$1.20.

HOW TO MEASURE FOR A RING.—Using a strip of heavy writing paper about half an inch wide, take the measure of the finger where the ring is to be worn. When drawn comfortably tight around the finger, the ends of the paper should just meet. Write your name on it, and send it with your order.

GEORGE W. YORK & CO.,
CHICAGO, ILLS.

ITALIAN QUEENS

—Either 3 or 5 Banded—

At same price. Untested, 75 cents; Tested, \$1.50; from July 1 to Nov. 1, \$1.00. Breeding Queens, the best, \$4.00 each. Have not lost a Queen in wintering in four years. I guarantee safe arrival and entire satisfaction. Send for Price-List.

F. A. CROWELL,
21A10t GRANGER, Fill. Co., MINN.

* Selling Out Stock of Sections. *

We have in stock 300,000 No. 1 White Basswood 4x4x1/4 Planer Sawed Sections, widths—1 and 15-16, 1/4, and 7-to-the-foot. Equal in every respect to our Polished Sections except in smoothness, which we offer, until sold, at

\$1.25 per M.

Price-List of Polished Sections and Other Supplies, on application.

WAUZeka MFG. CO., Wauzeka, Wis.

15Dtf Please mention the Bee Journal.